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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 108298718US	
		Application Number 10/733,523 Conf. #9060	Filed December 10, 2003
		First Named Inventor Beaman et al.	
		Art Unit 1762	Examiner D. P. Turocy

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant /inventor.  
 assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b)  
is enclosed. (Form PTO/SB/96)

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October 19, 2006

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.  
Submit multiple forms if more than one signature is required, see below\*.

\*Total of 1 forms are submitted.



(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: KEVIN L. BEAMAN ET AL.  
APPLICATION No.: 10/733,523  
FILED: DECEMBER 10, 2003  
FOR: **METHODS AND SYSTEMS FOR  
CONTROLLING TEMPERATURE  
DURING MICROFEATURE  
WORKPIECE PROCESSING, E.G., CVD  
DEPOSITION**

EXAMINER: DAVID P. TUROCY  
ART UNIT: 1762  
CONF. NO: 9060

**ARGUMENTS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW**

MS AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants submit a Notice of Appeal and the following arguments for consideration by the conference panel. Applicants respectfully submit that the arguments identify clear errors in the rejection of the claims, and respectfully request reconsideration of this application.

## ARGUMENTS

Applicants' amendment filed on April 20, 2006, includes a listing of the claims on pages 2-9 and a summary of claim 1 on pages 12 and 13. In response to applicants' previous amendment, all of the pending claims were rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the enablement requirement. Specifically, the Examiner asserts that the specification does not enable one skilled in the art to control a heat source based on a reading of "a first temperature sensor positioned outside the deposition chamber." (Office Action, June 20, 2006, page 3). The present issue for appeal, therefore, is whether the specification enables a person of ordinary skill in the art of semiconductor manufacturing tools to control a heat source based on a reading of "a first temperature sensor positioned outside the deposition chamber" without undue experimentation.

The enablement requirement is satisfied when "one reasonably skilled in the art could make or use the invention from the disclosures in the patent [application] coupled with information in the art without undue experimentation." *United States v. Teletronics, Inc.*, 857 F.2d 778, 785, 8 U.S.P.Q.2d 1217, 1223 (Fed. Cir. 1988). "As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. § 112 is satisfied." *M.P.E.P.* § 2164.01(b), citing *In re Fisher*, 427 F.2d 833, 839, 166 U.S.P.Q. 18, 24 (C.C.P.A. 1970). *In re Fisher* further states that "in cases involving predictable factors, such as mechanical or electrical elements, a single embodiment provides broad enablement in the sense that, once imagined, other embodiments can be made without difficulty ... by resort to known scientific laws." *Fisher* at 839. Additionally, "failure to disclose other methods by which the claimed invention may be made does not render a claim invalid under 35 U.S.C. § 112." *M.P.E.P.* § 2164.01(b), citing *Spectra-Physics, Inc. v. Coherent, Inc.* 827 F.2d 1524, 1533, 3 U.S.P.Q.2d 1737, 1743 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 954 (1987). Therefore, even a "broad claim can be enabled by disclosure of a single embodiment." *Spectra-Physics* at 1534.

The original specification in this application sufficiently discloses the details of apparatuses and methods to enable one of ordinary skill in the art to make a system that controls a heat source

based on a reading of "a first temperature sensor positioned outside the deposition chamber" without undue experimentation. For example, the specification as filed discloses a reactor 10 that includes "at least one outer temperature sensor 80 positioned outside the deposition chamber 25." (Specification at paragraph [0023]). In a particular embodiment illustrated in Figure 3, four outer temperature sensors 80a-d are positioned outside the deposition chamber 25, and each sensor is related to a different zone of the heater 50. (Specification at paragraphs [0023] and paragraph [0025]). In operation, each zone of the heater 50 can be controlled based on a control signal from one or more of the outer temperature sensors 80a-d. (Specification at paragraph [0029]). Accordingly, the specification provides specific embodiments that show locations for one or more outer temperature sensors positioned outside of the deposition chamber, and the specification describes obtaining readings from the outer sensors to control the heater. The applicants respectfully submit that the specification not only bears a reasonable correlation to the entire scope of the claim, but in fact provides sufficient information for a person of ordinary skill in the art to make the claimed invention without undue experimentation. Therefore, claim 1 meets the enablement requirement under 35 U.S.C. § 112.

Furthermore, even though the particular embodiment in Figure 3 shows the outer temperature sensor 80 positioned between the deposition chamber 25 and the heater 50, other embodiments can be made without undue experimentation based on known scientific laws and the knowledge of a person of ordinary skill in the art of semiconductor manufacturing tools. As indicated in Figure 5, the reading of the outer temperature sensor 80 increases when heat is provided from the heater 50 to the deposition chamber 25. Thus, the outer temperature sensor 80 can be placed at locations suitable to provide an indication of the heat transfer from the heater to the deposition chamber 25. For example, the outer temperature sensor 80 can be positioned inside the heater 50 to monitor the operation of the heater 50. In this example, the only experimentation necessary in controlling the heater 50 is tuning the temperature controller for the heater 50. Applicants respectfully submit that tuning controllers (e.g., PI or PID controllers) is routine and does not constitute undue experimentation.

The original specification also sufficiently discloses how to use an apparatus to control a heat source based on a reading from "a first temperature sensor positioned outside the deposition chamber." For example, the specification as filed discloses a particular embodiment of a method for ramping up the temperature in the deposition chamber 25 in Figure 4, Figure 5, and associated text. (See e.g., Specification paragraphs [0030] – [0049]). At the beginning of the ramp-up process, in one embodiment, the controller 90 initially sets the control temperature to the temperature that is a reading of the outer temperature sensor 80. (Specification at paragraph [0030]). The controller 90 then controls the heater 50 (e.g., via the heater power supply 52) based on a comparison of the control temperature and a target temperature. (Specification paragraph [0031]). As illustrated in Figure 5, after power is applied to the heater 50, the inner and outer temperatures both begin to rise. If the elapsed time of applying power to the heater 50 exceeds a predetermined time period, the controller 90 sets the control temperature to the temperature that is a reading of the inner temperature sensor 70 and continues to control the heater 50 based on the comparison of the control temperature and the target temperature. (Specification at paragraph [0034]). After another predetermined time period, the controller 90 resets the control temperature back to the temperature that is a reading of the outer temperature sensor 80. (Specification at paragraph [0035]). The controller 90 continues to alternate setting the control temperature as long as the inner temperature of the deposition chamber 25 does not exceed a predetermined end temperature indicating the completion of the ramp-up process. (Specification at paragraph [0035]). Based on this description, a person of ordinary skill in the art of semiconductor manufacturing tools would locate the first temperature sensor outside of the deposition chamber where the sensor could detect temperature changes related to heat transfer from the heater 50 to the outer portion of the deposition chamber 25. Therefore, claim 1 further complies with the enablement requirement under 35 U.S.C. § 112.

Accordingly, the pending claims are allowable because the pending claims comply with the Section 112 requirements. In view of these errors, applicants respectfully request reconsideration of this application.

Dated: 10/19/06

Respectfully submitted,

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